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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,870	02/23/2004	Takeshi Oono	Q79594	7088

23373 7590 02/28/2006

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EXAMINER	
MOONEY, MICHAEL P	

ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/782,870	OONO ET AL.	
	Examiner	Art Unit	
	Michael P. Mooney	2883	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) *5,12 and 14* is/are withdrawn from consideration.

5)☒ Claim(s) *7-11 and 15* is/are allowed.

6)☒ Claim(s) *1, 4, 6, 13, 16 and 17* is/are rejected.

7)☒ Claim(s) *2 and 3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Examiner has carefully considered the prior art rejection and the Applicant's response. Applicant is correct in stating that the prior examiner was not consistent in naming the "second recess" in the previous rejection. To be consistent the second recess of Cheng et al. should be that which is created by the epoxy 104 in figure 9. That being the case, the epoxy 104 of Cheng et al. clearly does not have a high-precision machined hole as stated in claim 2. For at least this reason, another non-final rejection appears below.

The rejection of claim 1 given in the 9/2/05 Office action, however, is still deemed appropriate.

Election/Restrictions

The statement, "Applicant's election without traverse of claims 1-4, 6-11, 13 and 15-17 in the reply filed on June 30, 2005 is acknowledged" was made in the 9/2/05 Office action. The Office will act consistently with the aforementioned said statement.

Of course, the Office will give proper consideration to any non-elected claim which is dependent on an allowable elected claim.

Response to Arguments

Applicant's arguments regarding allowability filed 12/2/05 have been fully considered but they are not persuasive with respect to all claims.

Applicant's addition of "press-fitted" to replace the word "fitted" in device claim 1 is insufficient to render the claim patentably distinct over Cheng et al. It would be

erroneous to allow this device claim based on the addition of language which involves a process of assembling a device.

Additionally, the guide pin 34 inherently exerts some pressure on the epoxy and therefore presses on the epoxy 104. Likewise, the guide pin 34 fits into the layer of epoxy 104. Therefore, it can logically be said that the guide pin 34 is press-fitted in the epoxy 104. At least for the reasons in this paragraph, Applicant's statement that Cheng et al.'s alignment pins 34 are not and cannot be press fitted into a so-called "liquid" epoxy "adhesive" is refuted.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 6, 13 are rejected under 35 U.S.C. 102e as being anticipated by Cheng et al., U.S. Patent Application Publication 2003/0053766.

Cheng et al. teaches an optical device mounted substrate assembly comprising: a ceramic substrate having a front surface and a first recess having an open end at least at the front surface (Fig 9, ref sign 100); an optical device (Fig 9, ref sign 40)

mounted on the front surface of the ceramic substrate and having at least one of a light emitting portion and a light receiving portion (para 32, lines 7-10 and 37-40), the optical device capable of being optically connected to one of an optical waveguide (Fig 9, ref sign 17) and an optical fiber connector (Fig 9, ref sign 64) in a way as to align optical axes of the optical device and one of the optical waveguide and the optical fiber connector with each other; a resin layer (Fig 9, ref sign 104) disposed in the first recess 100 and having a second recess smaller in diameter than the first recess and having an open end at least at a side corresponding to the front surface. Figure 9 depicts a guide pin (ref sign 34) that is snugged in a cylindrical layer of epoxy (ref sign 104). The second recess is the recess in the cylindrical layer of epoxy where the guide pin 34 is snugged.

Furthermore, Cheng et al. teaches an alignment guide member fitted in the second recess (Fig 9, ref sign 34) and having a protruded portion protruding from the front surface of the ceramic substrate and fittingly engageable in an alignment hole of one of the optical waveguide and the optical fiber connector (Fig 9, hole of Fig 9, ref sign 64 that guide pin 34 passes through).

Thus claim 1 is met.

Regarding claim 4, the ceramic substrate comprises two first recesses (Fig 9, ref sign 100 top and bottom) each having the resin layer formed with the second recess (Fig 9, ref sign 104 top and bottom), the optical device (Fig 9, ref sign 40) is disposed between the second recesses

Regarding claim 6, the optical device is positioned with reference to the second recess since it is between the second recesses.

Cheng et al. teaches an optical fiber connector equipped optical device mounted substrate assembly comprising: an optical fiber connector (Fig 9, ref sign 64); a ceramic substrate (para 32, lines 3-6 and Fig 9, ref sign 78) having a front surface and a first recess having an open end at least at the front surface (Fig 9, ref sign 100);; an optical device (Fig 9, ref sign 40) mounted on the front surface of the ceramic substrate and having at least one of a light emitting portion and a light receiving portion (para 32, lines 7-10 and 37-40), the optical device being optically connected to the optical fiber connector in a way as to align optical axes of the optical device and the optical fiber connector with each other; a resin layer (Fig 9, ref sign 104) disposed in the first recess and having a second recess smaller in diameter than the first recess and having an open end at least at a side corresponding to the front surface. Figure 9 depicts a guide pin (ref sign 34) that is snugged in a cylindrical layer of epoxy (ref sign 104). The second recess is the recess in the cylindrical layer of epoxy where the guide pin 34 is snugged.

Furthermore, Cheng et al. teaches an alignment guide member press-fitted in the second recess (Fig 9, ref sign 34, 104) and having a protruded portion protruding from the front surface of the ceramic substrate and fittingly engageable in an alignment hole of the optical fiber connector (Fig 9, hole of Fig 9, ref sign 64 that guide pin 34 passes through).

Thus claim 13 is met.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16, 17 are rejected under 35 U.S.C. 102b as being anticipated by Swirhun et al. (5631988).

Swirhun et al. (e.g., fig. 2a,) teaches an optical component equipped optical device mounted substrate assembly comprising: an optical component 110 having at least one of an optical transmission function, a light condensing function and a light reflecting function, the optical component further having an optical component side alignment recess 141; substrate 90 having a substrate side alignment recess 119; an optical device 150 mounted on the substrate 90 and having at least one of a light emitting portion and a light receiving portion 110, the optical device 150 being optically connected to the optical component 110 in a way as to align optical axes of the optical device and the optical component with each other (fig. 2a); and an alignment guide member 140 fittingly engaged in the optical component side alignment recess 141 and the substrate side alignment recess 119.

Thus claim 16 is met.

Swirhun et al. (e.g., fig. 2a) teaches an optical device mounted substrate assembly comprising: a substrate 90 having a substrate side alignment recess 119; an optical device 110 mounted on the substrate 90 and having at least one of a light

emitting portion and a light receiving portion, the optical device 110 capable of being optically connected to an optical component 150 having at least one of an optical transmission function, a light condensing function and a light reflecting function in a way as to align optical axes of the optical device 110 and the optical component 150 with each other (fig. 2a); and an alignment guide member 140 fitted in the substrate side alignment recess 119 and fittingly engageable in an optical component side alignment recess 141 of the optical component 150. Thus claim 17 is met.

Allowable Subject Matter

Claims 7-11, 15 are allowed.

Claims 2, 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art, either alone or in combination, does not disclose or render obvious a method wherein a first perforating step of forming the first recess in an unsintered ceramic product by machining; a firing step of firing the unsintered ceramic product to form the ceramic substrate; a resin layer forming step of forming the resin layer in the first recess; a curing step of curing the resin layer; a second perforating step of forming the second recess in the resin layer by machining after the curing step; and a guide member fitting step of fitting the alignment guide member in the second recess in combination with the rest of claim 7 for the reasons stated by Applicant in the Remarks section filed 12/2/05.

It is noted that the claim 7 is allowable because the unique combination of each and every specific element stated in the claim.

The prior art, either alone or in combination, does not disclose or render obvious a method including an alignment hole forming step of forming the alignment hole in the optical waveguide; a first perforating step of forming the first recess in an unsintered ceramic product by machining; a firing step of filing the unsintered ceramic product to form the ceramic substrate; a resin layer forming step of forming the resin layer in the first recess; a curing step of curing the resin layer; a second perforating step of forming the second recess in the resin layer by machining after the curing step; a guide member fitting step of fitting the alignment guide member in the second recess in combination with the rest of claim 15 for the reasons stated by Applicant in the Remarks section filed 12/2/05.

It is noted that the claim 15 is allowable because the unique combination of each and every specific element stated in the claim.

The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 3, the prior art of record, taken alone or in combination, fails to disclose or render obvious a resin layer containing an inorganic filler having a thermal conductivity higher than that of a resin material forming the resin layer.

Regarding claim 2, the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the second recess is a high-precision machined hole, and the alignment guide member comprises a guide pin fitted in the high-precision machined hole.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 571-272-2422. The examiner can normally be reached during weekdays, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 571-272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1562.

Michael P. Mooney
Examiner
Art Unit 2883

Frank G. Font
Supervisory Patent Examiner
Art Unit 2883

FGF/mpm
2/16/06